Mr. Saeed Elsheikh

# Chapter 1: Nature in Our Surroundings

## Grade 4 – Science

### Table of Contents


- Chapter 1: Nature in Our Surroundings
- Chapter 2: How Insects Grow
- Chapter 3: How Plants Grow
- Chapter 4: Properties of Light
- Chapter 5: Properties of Sound
- Chapter 6: The Force of Wind
- Chapter 7: The Force of Rubber
- Chapter 8: Soil, Water, and Life in Egypt


Prepared by Mr. Saeed Elsheikh – 01098395003

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# 1-1 Let's Find Living Organisms

**Concept**

**Animals and plants are both living organisms!**

**Living Organisms:**

## Animals

**Living Organisms:**

## Plants

## Let's think about Habitats

Flower bed

Roots of a big tree

Gaps in rocks

**1** **Guess:** Talk about where they might be.

**2** **Search:** Go outside and check the places you guessed. If you find one, watch it quietly and carefully.

**3** **Note the place:** Write down not just the name, but also 'what kind of place you found it in.'

## Living organisms exploration - where are they?

## 'Habitats' of living organisms

Living organisms, such as humans, animals, and plants, differ from non-living things, such as rocks, water, and air. Living organisms carry out essential life processes, including obtaining nutrition, respiration, and growth.

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# Where Living Organisms Are

## Near grass or trees:

Places with food or places easy to hide.

## Under stones or shade of rocks:

Places with dampness (water) or cool places away from the sun.

## Living to match the environment

Even in hot and dry places like deserts, living organisms can live in the shade of rocks or under the ground.

## Key Vocabulary for 1-1

| | English | العربية |
|---|---|---|
| 🌱 | Living Organisms | الكائنات الحية |
| 🪨 | Non-living Things | الأشياء غير الحية |
| 🌍 | Habitat | الموطن الطبيعي / البيئة |
| 🌳 | Environment | البيئة المحيطة |
| ❤️ | Essential Life Processes | العمليات الحيوية الأساسية |
| 🍎 | Nutrition | التغذية |
| 🫁 | Respiration | التنفس |
| 🌱 | Growth | النمو |
| 💧 | Dampness | رطوبة / نداوة |

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# 1-2 How to Observe

## Introduction

Let’s check the shape and body of the living organisms we found closely.

What should I check?

How about the size and color?

## Let’s observe closely!

Let’s use a magnifying glass.

**A**

### Insects:

Look at small hairs or the joints of legs.

**B**

### Plants:

Look at the lines (veins) on the leaves.

Let’s write a record card.

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# Rules for Observation

When you look closely at living organisms, pay attention to **shape**, **color**, and **size**.

## How to use a magnifying glass:

### 1 When you CAN move the thing:

Hold the glass close to your eye and move the thing back and forth to focus.

### 2 When you CANNOT move the thing:

Hold the glass close to your eye and move your face back and forth to focus.

## ! Caution:

1. **Never** look directly at the sun with a magnifying glass.

2. **Wear gloves** to protect your hands from contamination.

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# How to Write a Record Card

1. Write the topic first.
2. Write the date and your name.
3. Write what you found with a sketch and sentences.
4. Sketch: Draw with thin, clear lines. (Don't shade it in!)
5. Sentences: Write about the place, size, shape, and color.
6. Finally, write what you learned or what you wondered.

## Record Card Sample

**Date:** September 28

**Name & Grade:** Grade 4/A - Sara Mohamed Ahmed

**Organism Name:** Dung beetle

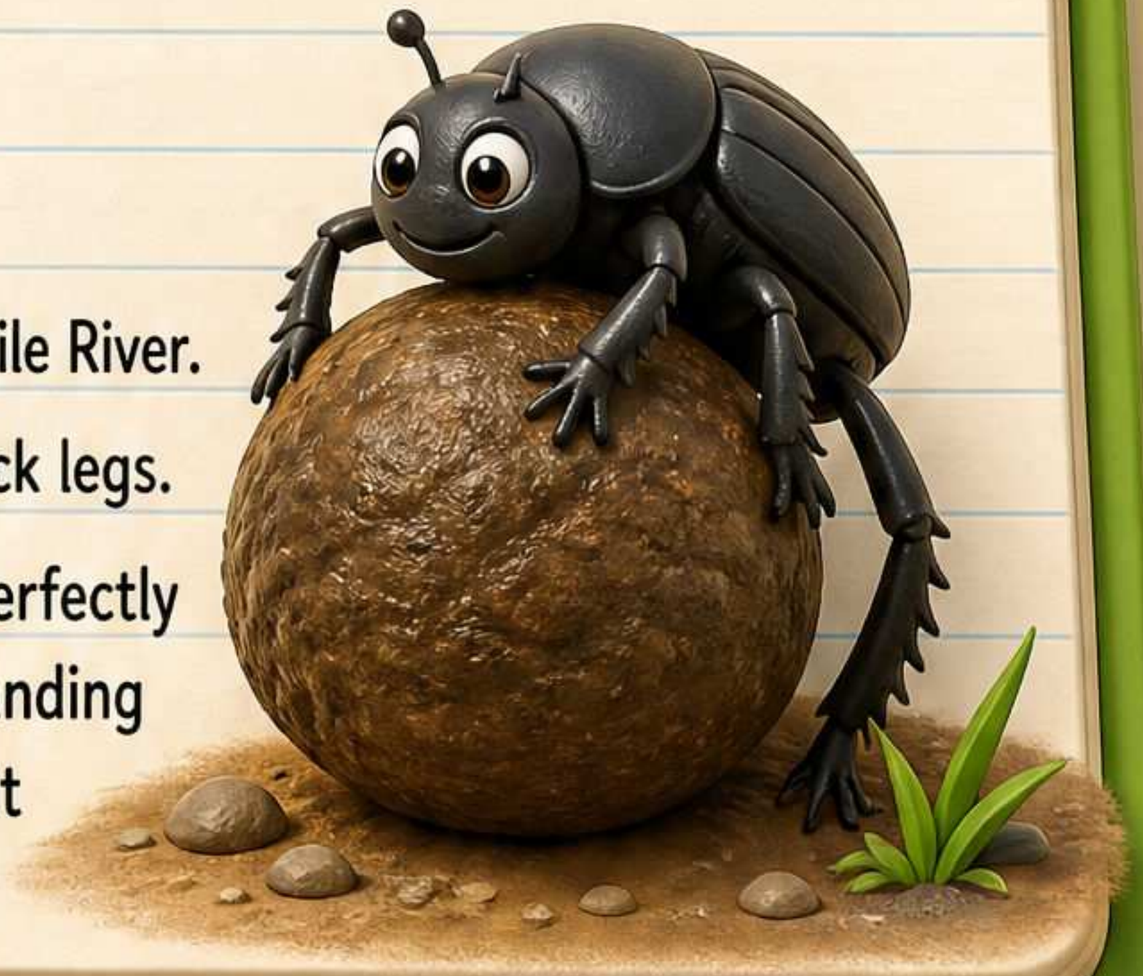
**Size:** About 2 cm

**Color:** Blackish

**Location:** On the ground near the Nile River.

**Shape:** It's oval-shaped with long back legs.

**Observations / Wonder:** It rolled a perfectly round ball of dung backward while standing on its head. I wonder how they make it such a perfect circle.



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# Exercises on 1-2 How to Observe (Part 1)

## 1 Where do these living organisms often live?

**Choose the correct words from below to fill in the blanks.**

- Grasshoppers are often in the ( ..... ).
- Pill bugs are often in ( ..... ) places like under stones.
- Lizards are sometimes seen on sunny ( ..... ).

**Options** damp / rocks / grass

## 2 Fill in the blank about observation.

Living organisms live in ( ..... ) that fit them.
So, the kinds of living organisms you find are different depending on the location.

## 3 Mark ✓ for correct statement about how to use a magnifying glass, and ✗ for the incorrect one.

( ☐ ) Hold the glass far from the eye and look around.

( ☐ ) When observing a tree that cannot move, move your own face to focus.

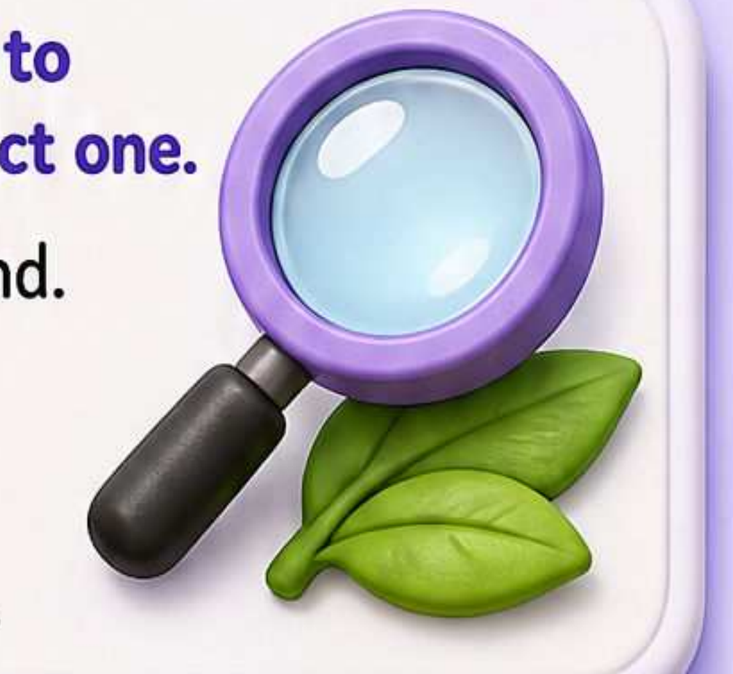
( ☐ ) Look at the sun through the magnifying glass.

## 4 Choose the correct way to sketch for science from below.

**A:** Add shadows to make it look cool. ☐

**B:** Draw the shape exactly as you see it with thin lines. ☐

**C:** If you can't see a part well, imagine it and draw it. ☐



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# Exercises on 1-2
## How to Observe (Part 2)

**1** **Where is it easy to find living organisms in a hot, dry place like Egypt? Choose all correct anwers from below.**

**A:** Right in the middle of the hot sand in the sun. ☐

**B:** Cool places in the shadow of rocks or big stones. ☐

**C:** At the roots where a little bit of grass grows. ☐

**2** **Choose the correct words from below to fill in the blanks.**

- Near grass or trees: Places with ( ..... ) or places easy to ( ..... ).
- Under stones or shadows of rocks: Places with ( ..... ) or cool places away from the sun.

dampness(water) / hide / food

**3** **Mark ✓ for correct statement about how to use a glass, and ✗ for incorrect one.**

( ☐ ) Held the glass close to the eye and looked at the sun.

( ☐ ) To look at a leaf in hand, held the glass to the eye and moved the leaf back and forth.

( ☐ ) The object couldn't move, so held the glass far from the eye and stretched arms out.

**4** **What is important to write on a record card besides the sketch? Choose 3 correct answers from below.**

**A:** Date ☐

**B:** Location found ☐

**C:** What you ate for dinner yesterday ☐

**D:** Color and shape of the living organism ☐

**E:** Your favorite colors and shapes ☐

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# Key Vocabulary for 1-2

| Word / Term (المصطلح بالإنجليزية) | Translation (الترجمة بالعربية) |
|---|---|
| Observe / Observation | يلاحظ / الملاحظة |
| Magnifying Glass | عدسة مكبرة |
| Record Card | بطاقة تسجيل / بطاقة ملاحظات |
| Sketch | رسم تخطيطي / رسم يدوي مبسط |
| Contamination | تلوث / اتساخ |
| Veins | عروق (في أوراق النبات) |
| Focus | يركز / يضبط البؤرة |
| Joints | مفاصل |

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# 1-3 Colors and Shapes of Living Organisms

## Introduction

Let's group the living organisms we found.

**Let's group the living organisms in the photos in different ways:**

### A By Color:

Brown group,
Green group, etc.

### B By Shape:

Group with 6 legs,
Group with no legs, etc.

### C By Size:

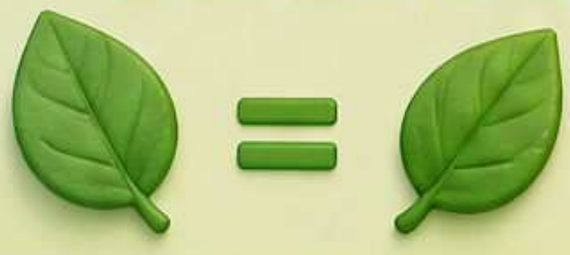
Group bigger than a sparrow,
Group smaller than a sparrow, etc.

## Let's make groups!

You can group things by looking at their color and shape.

## How to Group (Classify)

**1 Find common points:**
Look for things that are the same, like 'has legs,', 'has wings,' or 'colors are similar'.



**2 Find differences:**
Look for things that are not the same, like 'shape is different' or 'size is different'.

**3 Classify:**
Collect things with similar features and put them in groups.

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# Let's Expand! — Animals

1

## Hoopoe

**Habitats:**
Gardens and farmlands

2

## Cattle Egret

**Habitats:**
The Nile River basin, farmlands and green areas

3

## Dung Beetle

**Habitats:**
Deserts, grasslands and farmlands

4

## Sand Cat

**Habitats:**
Deserts east of the Nile River

5

## Plain Tiger

**Habitats:**
The Nile Delta, valleys and city parks

6

## Egyptian Cobra

**Habitats:**
Dry semi-deserts, savannas and woodlands

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# Let's Expand! — Plants

1

## Palm Tree

**Habitats:** Deserts, oases and the Nile River basin

2

## Colocynth

**Habitats:** Dry deserts near the Mediterranean Sea

3

## Acacia

**Habitats:** Dry areas, deserts and around oases

4

## Lotus

**Habitats:** Wetlands and swamps of the Nile River

5

## Papyrus

**Habitats:** Swamps and watersides of the Nile Delta

6

## Egyptian Clover

**Habitats:** Rich lands of the Nile Delta and Upper Egypt

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# Key Vocabulary for 1-3

| Word / Term (المصطلح بالإنجليزية) | Translation (الترجمة بالعربية) |
|---|---|
| Classify / Classification | يصنف / التصنيف (التقسيم لمجموعات) |
| Common Points | النقاط / السمات المشتركة |
| Differences | الاختلافات / الفروق |
| Hoopoe | الهدهد |
| Cattle Egret | أبو قردان |
| Sand Cat | قط الرمال |
| Plain Tiger | فراشة نمر السبت |
| Egyptian Cobra | الكوبرا المصرية |
| Palm Tree | شجرة النخيل |
| Colocynth | الحنظل |
| Acacia | السنط / الأكاسيا |
| Lotus | اللوتس |
| Papyrus | البردي / نبات البردي |
| Egyptian Clover | البرسيم المصري |

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# 1-4 Different Places, Different Living Organisms

## Concepts & Key Questions

The kinds of living organisms that can live in a place depend on their habitat.

**Are there living organisms that want water near the river?**

**What is the difference between the living organisms found along the Nile River and in the desert?**

## The Connection between Habitats and Living Organisms

Let’s find the connection between the environment of a habitat and its living organisms!

### 1 Compare the environments:

Look at the pictures of the Nile River and the desert, and compare the ‘amount of water’ and ‘amount of sunlight’ living organisms can use.

### 2 Predict:

Discuss ‘What would happen if you took a frog from the Nile River to the desert?’

### 3 Summary:

Let’s summarize that living organisms need adaptation suited to their environment to live in that place.

## Let’s think about habitats!

The place where a living organism lives is called its **habitat.**

Changing body parts or behaviors to survive in a place is called **adaptation.**

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# Differences in Habitats

| Feature / Aspect | Along the Nile River | Desert |
|---|---|---|
| Environment | Plenty of water, moist soil | Very little water, dry soil |
| Plants | Luffa, Orange, Lotus | Acacia, Colocynth |
| Animals | Frog, Bee, Water bird | Fennec fox, Jerboa, Lizard |

Desert plants (like the acacia) have small leaves so they don't lose water, and their roots grow deep underground.

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# Exercises on 1-4
## Different Places, Different Living Organisms
## (Part 1)

**1** **What do you call the place where a living organism lives?**

.....

**2** **Write A for living organisms found in the desert, and B for those found along the river from below:**

Egyptian sand lizard ( )

Water liiy ( )

Fennec fox ( )

Papyrus ( )

Jerboa ( )

Egyptian goose ( )

**3** **What are the physical features of desert plants that help them keep water? Choose all correct answers from below:**

A: The leaves are very big. ☐

B: The leaves are small. ☐

C: The roots grow shallowly underground. ☐

D: The roots grow deep underground. ☐

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# Exercises on 1-4
## Different Places, Different Living Organisms
### (Part 2)

**1** **Choose the correct answer about the 'color' and 'shape' of living organisms from below:**

**A:** The color and shape of living organisms are decided by how much they exercise ☐

**B:** The color and shape of living organisms are adaptations to survive in their habitat. ☐

**C:** The color and shape of living organisms are caused by the differences in what they eat. ☐

**2** **Choose the correct answer about combination of a plant's 'shape' and its habitat from below:**

**A:** Desert plants have small leaves so they don't lose water. ☐

**B:** Desert plants have very big leaves to absorb a lot of water. ☐

**C:** Desert plants have very big leaves to share water with animals. ☐

**3** **What do you think would happen if you took a frog living in the Nile River to the desert? Answer with your reason.**

.....

.....

.....

**4** **What is it called when a living organism changes its body parts or behaviors to survive in a place?**

.....

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# Key Vocabulary for 1-4

| Word / Term (المصطلح بالإنجليزية) | Translation (الترجمة بالعربية) |
|---|---|
| Adaptation | التكيف |
| Physical Features | الخصائص الجسمانية / البدنية |
| Moist Soil | تربة رطبة |
| Shallow / Deep Roots | جذور سطحية / عميقة |
| Egyptian Sand Lizard | سحلية الرمال المصرية |
| Water Lily | زنبق الماء |
| Egyptian Goose | الإوز المصري |

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# 1-5 Desert Living Organisms

## Introduction

- How do living organisms live in the hot desert where there is little water?
- There are many animals in the desert that live in clever ways!

## Body Styles to Survive the Desert

In the deserts of Egypt, living organisms have special body shapes and ways of living to match the harsh environment.

### A Fennec Fox

- **Big ears:** They have the role of letting body heat escape to the outside.
- **Fur on the Soles of Feet:** Covered with thick fur so they do not get burned when walking on hot sand.

### B Jerboa

- **Long back legs:** They jump like a kangaroo to move quickly. This helps keep the time they touch the hot ground short.

## Clever Ways of Living:

- Many animals are active at night when the temperature goes down.
- During the day, they spend time in cool holes under the ground.

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# Let's find the secrets of desert animals!

Look at photos or books and talk about how desert animals deal with the heat.

## 1 Compare the size of ears:

Compare the 'ear size' of animals living in forests with the Fennec fox living in the desert. Why are they different?

## 2 Look at the shape of legs:

Why are the Jerboa's back legs so long? Let's imagine how it walks on the sand.

## 3 How to drink water:

- Camels drink a lot of water at once and store it inside their bodies.
- Some desert animals drink almost no water and can live only on the water found in their food.

**The shape of the body hides a 'reason' for living in that place!**

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# Exercises on 1-5
# Desert Living Organisms

## 1 Why are the Fennec fox's ears so big?

**Choose the correct answer from below:**

**A:** To hear small sounds from far away well. ☐

**B:** To let heat inside the body escape to the outside and keep the body cool. ☐

**C:** To move the big ears like wings and fly in the sky. ☐

## 2 Why are animals living in the desert not very active during the day?

**Fill in the blanks with the correct words to explain the reason:**

Because the sunlight is strong and it is very ( 1 ..... ) during the day in the desert, animals often rest in cool ( 2 ..... ) in the ground or in the shade of rocks.

## 3 Which of the following is NOT true about the features and life of desert living organisms?

**A:** Fennee foxes have fur on the soles of their feet to protect them from hot sand. ☐

**B:** Mice in the desert often move around at night to avoid the heat. ☐

**C:** Desert plants spread many big, thin leaves so they don't lose water. ☐

## 4 Fill in the blank about the body feature of the Jerboa:

The Jerboa uses its long ( ..... ) to jump and move quickly avoiding the hot ground.

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# Key Vocabulary

## for 1-5

| Translation (الترجمة بالعربية) | Word / Term (المصطلح بالإنجليزية) |
| --- | --- |
| ثعلب الفنك | Fennec Fox |
| اليربوع | Jerboa |
| باطن القدمين | Soles of Feet |
| تبديد / إخراج حرارة الجسم | Escape Heat |
| جحور باردة تحت الأرض | Cool Holes / Burrows |



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# Chapter 1 Column: The Desert Cleaner, 'Scarab"

## The Wonder of Living Organisms

## The True Identity of the Bug Loved by Ancient Egypt

In the history of Egypt, the most famous insect is the scarab (dung beetle). Ancient Egyptian people treated this bug with great care as a 'holy creature that carries the sun'. But, if you look at them through the eyes of science, they have an even more amazing role!

### 1. Scarabs are 'Guardians of the Environment'

Scarabs roll animal dung into balls, carry them, and bury them in the soil. At first glance, it might look like a slightly dirty job, but this is a very important 'cleanup' for nature.

- **Making the soil rich:**
  By burying dung in the dirt, they deliver nutrients (plant food) to the soil so plants can grow.

- **Preventing sickness:**
  They stop sickness from spreading from leftover dung.

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# 2. The Amazing Ability of Scarabs

Recent studies have found that when scarabs roll dung, they are actually looking at the 'stars'. At night, they use the light of the Milky Way as a guide to carry it straight to where they want to go. Inside their small bodies, they have a super smart navigator that feels the universe!

If you find a scarab in the Egyptian desert, let's watch them without getting in their way. Without them, the desert would have been a much harder place to live in.

## Key Vocabulary for Chapter Column

| | Word / Term (المصطلح بالإنجليزية) | Translation (الترجمة بالعربية) |
|---|---|---|
|  | Scarab / Dung Beetle | خنفساء الروث / الجُعَل |
|  | Guardians of the Environment | حَراس البيئة |
| | Nutrients | العناصر الغذائية / المغذيات |
| | Milky Way | مُجرة درب التبانة |
| | Navigator | مُلاحَ / نظام توجيه |

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MR

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موقع الدكتور محمد رزق
Dr.MoRizK